

CLAIMS

1. A rubber composition characterized by containing 5-60 parts by mass of an aromatic vinyl compound-diene compound copolymer (B) having a weight average molecular weight of 5,000-300,000 (conversion to polystyrene through gel permeation chromatography) based on 100 parts by mass of a rubber component comprising at least one rubber of natural rubber and synthetic diene-based rubbers in which the copolymer (B) comprises 5-80 mass% of the aromatic vinyl compound and a vinyl bond content in diene compound portion is 10-80 mass%.

2. A rubber composition according to claim 1, wherein the rubber component (A) comprises not less than 50 mass% of a styrene-butadiene copolymer rubber.

3. A rubber composition according to claim 1 or 2, wherein the rubber component (A) contains not less than 50 mass% of a styrene-butadiene copolymer (C) having a weight average molecular weight of 300,000-1,500,000, and the copolymer (C) comprises 20-60 mass% of an aromatic vinyl compound and has a vinyl bond content in diene compound portion of 10-80 mass%, and the copolymer (B) comprises 10-70 mass% of an aromatic vinyl compound, and a difference in aromatic vinyl compound content between the copolymer (C) and the copolymer (B) is not more than 30 mass%.

4. A rubber composition according to claim 3, wherein the copolymer (C) is at least one of an emulsion-polymerized styrene-butadiene copolymer comprising not less than 20 mass% of an aromatic vinyl compound and a solution-polymerized styrene-butadiene copolymer comprising not less than 20 mass% of an aromatic vinyl compound and having a vinyl bond content in diene compound portion of not less than 10 mass%.

5. A rubber composition according to any one of claims 1 to 4, wherein the aromatic vinyl compound of the copolymer (B) is styrene.

6. A rubber composition according to any one of claims 1 to 5, wherein the diene compound of the copolymer (B) is butadiene.

7. A rubber composition according to any one of claims 1 to 6, wherein the copolymer (B) is a solution-polymerized styrene-butadiene copolymer rubber.

8. A rubber composition according to any one of claims 1 to 7, wherein the copolymer (B) has a weight average molecular weight of 20,000-200,000.

9. A rubber composition according to any one of claims 1 to 8, wherein the copolymer has a weight average molecular weight of 50,000-150,000.

10. A rubber composition according to any one of claims 1 to 9, which further contains 30-90 parts by mass of a filler based on 100 parts by mass of the rubber component (A).
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11. A rubber composition according to claim 10, wherein the filler is at least one of carbon black and silica.

12. A rubber composition according to claim 11, wherein the carbon black is SAF class to HAF class.

10 13. A rubber composition according to any one of claims 1 to 12, wherein a total amount of the copolymer (B) and a softening agent is 5-80 parts by mass based on 100 parts by mass of the rubber component (A).

14. A rubber composition according to any one of claims 1 to 13, wherein a total amount of the copolymer (B) and a softening agent is 5-60 parts by mass based on 100 parts by mass of the rubber component (A).
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15. A pneumatic tire characterized by using a rubber composition as claimed in any one of claims 1 to 14 in at least ground contact part of a tread portion.